We claim:

1. A high throughput chemical screener comprising:

a chemical library comprising storage locations for at least approximately 3000 multi-well plates, each of which comprises at least approximately 96 individual chemical wells;

an automated, bi-directional, and parallel transport path coupled to said chemical library; and

a plurality of asynchronously operable automated liquid handling devices operatively coupled to said transport path, whereby said high throughput chemical screener can process at least approximately 25,000 chemical samples in a 24 hour period.

2. The chemical screener of Claim 1, wherein said transport path comprises a two dimensional array of linearly extending transport lanes.

3. The chemical screener of Claim 1, wherein said automated liquid handling devices comprise reagent dispensers configured to aspirate reagents from selected ones of said chemical wells and to dispense reagents into selected ones of said chemical wells.

4. The chemical screener of Claim 1, wherein said transport path couples to at least one plate storage buffer.

5. The chemical screener of Claim 1, additionally comprising an automated multi-well plate retriever associated with said chemical library.

6. The chemical screener of Claim 5, wherein said automated multi-well plate retriever comprises an integral plate storage buffer

7. The chemical screener of Claim 1, wherein said transport path couples to at least one plate storage buffer.

8. A device for rapidly screening samples containing a molecular target, comprising:

a screening sample transporter programmably controlled to facilitate parallel processing of a plurality of sample wells, and

at least one workstation storage operably linked to said screening sample transporter and programmably integrated to said screening sample transporter.

9. The device of Claim 8, wherein said screening sample transporter is configured to transport said sample wells at rate of at least 50,000 per day.

10. The device of Claim 8, wherein said screening sample transporter comprises a plurality of non-circular transport paths.

11. The device of Claim 10, wherein said transport paths comprise multiple parallel transport lanes.

12. The device of Claim 11, wherein at least one of said transport lanes is configured to deliver sample wells toward a storage area, and wherein at least one of said transport lanes is configured to deliver sample wells to said at least one workstation.

13. A chemical handling apparatus comprising:

a chemical storage module storing a set of chemical compounds, said chemical storage module comprising an automated retriever configured to retrieve selected ones of said chemical compounds;

a multi-lane transport module coupled to said chemical storage module which is positioned and configured to receive said selected ones of said chemical compounds from said automated retriever and to transport said selected ones of said chemical compounds away from said chemical storage module.

14. The apparatus of Claim 13, additionally comprising an automated liquid handler coupled to said transport module which is positioned and configured to receive said selected ones of said chemical compounds for processing.

15. The apparatus of Claim 13, wherein said transport module comprises a two-dimensional array of orthogonal transport paths.

16. The apparatus of Claim 15, wherein said set of chemical compounds in said chemical storage library is arranged as a two-dimensional array extending vertically and horizontally.

17. A device for identifying useful chemicals, comprising:

a chemical well transfer path comprising a linearly extending transfer path and one or more additional transfer paths substantially transverse to said linearly extending transfer path;

a library of chemicals located at one end of said linearly extending transfer path; and

at least one chemical handling module operatively coupled to one of said one or more transverse transfer paths, whereby chemicals in said chemical library are delivered to said at least one chemical handling module from said library of chemicals.

18. The device of Claim 17, wherein said linearly extending transport path is bi-directional.

19. The device of Claim 17, wherein said linearly extending transport path comprises at least two lanes operable to transport wells in one direction along said linearly extending transfer path.

20. A high throughput chemical screener comprising:

a chemical library comprising storage locations for at least approximately 1000 multi-well plates;

a parallel transport path coupled to said chemical library; and

a plurality of asynchronously operable automated liquid handling devices coupled to said transport path.

21. The chemical screener of Claim 20, wherein parallel transport along said transport path and parallel processing by said automated liquid handling devices achieves a throughput of at least approximately 100,000 chemical samples in a 24 hour period.

22. A chemical storage apparatus comprising:

a plurality of storage locations for chemicals;

an automated chemical retriever configured to retrieve chemicals from said storage locations;

a chemical storage buffer on said automated chemical retriever for temporarily storing chemicals retrieved from said storage locations.

23. The chemical storage apparatus of Claim 22, comprising at least approximately 3000 storage locations for multi-well plates.